

ABSTRACT OF THE DISCLOSURE

A method of forming a coating on a substrate. A coating is formed on a substrate by depositing a solution comprising a resin molecule containing at least 2 Si-H groups, at least 2 Si-CH₃ groups, or a combination thereof, and a solvent in a manner in which at least about 5 volume % of the solvent remains in the coating after deposition, followed by exposing the coating to UV radiation at a power and wavelength spectrum sufficient to cause hydrolysis of the Si-H groups, Si-CH₃ groups, or combination thereof, and at least partial condensation, and evaporating the solvent from the coating to form a porous network coating. The method enables production of low-k materials without treatment with ammonia.